

Amendments to the Claims:

This listing replaces all prior versions and listings of claims in the application:

1-22. (Cancelled)

23. (Currently amended) A method of diagnosis, the method comprising:

(a) providing a test cell; and

(b) determining, in the test cell, the degree of methylation of a HIN-1 promoter region in the test cell one or more C residues in a nucleotide sequence consisting of (i) the HIN-1 promoter region and (ii) the first twelve nucleotides of SEQ ID NO:3,

wherein the C residues are C residues in CpG sequences, and

wherein a high degree of methylation of the HIN-1 promoter region C residues is an indication that the test cell is a cancer cell.

24. (Original) The method of claim 23, wherein the test cell is a breast cell.

25. (Withdrawn) An isolated polypeptide comprising (a) a functional fragment of the polypeptide of claim 8; or (b) the functional fragment, except for one or more conservative amino acid substitutions.

26. (Withdrawn) An isolated DNA comprising a fragment of the nucleic acid with SEQ ID NO:3, wherein the fragment comprises nucleotides 55 and 56 of SEQ ID NO:3.

27. (Withdrawn) An antibody that binds to the polypeptide of claim 8.

28. (Withdrawn) The antibody of claim 27, wherein the antibody is a monoclonal antibody.

29. (Withdrawn) The antibody of claim 27, wherein the antibody is a polyclonal antibody.

30. (Withdrawn) A method of treatment comprising
identifying a patient as having cancer cells in which (a) HIN-1 gene expression is low or (b) a
HIN-1 promoter region is methylated; and
treating the patient with a compound that reduces methylation of the HIN-1 promoter region.

31. (Withdrawn) A method of identifying a compound that replaces the function of HIN-
1 in cells that do not express HIN-1, the method comprising:
(a) providing a first cell that does not express HIN-1;
(b) providing a second cell that does express HIN-1;
(c) treating the first cell and the second cell with a test compound; and
(d) determining whether the test compound decreases proliferation of the first or the
second cell, wherein a compound that decreases proliferation of the first cell but not the second
cell can potentially replace the function of HIN-1 in cells that do not express HIN -1.

32. (Withdrawn) A method of treatment comprising
identifying a patient as having cancer cells in which (a) HIN-1 gene expression is low or
(b) a HIN-1 promoter region is methylated; and
treating the patient with a compound that induces expression of a gene with a methylated
promoter region.

33. (Withdrawn) The method of claim 23, wherein the cell is a pancreatic cell.

34. (Withdrawn) The method of claim 23, wherein the cell is a prostate cell.

35. (New) The method of claim 23, wherein the test cell is selected from the group
consisting of a lung cell, a prostate cell, a pancreatic cell, a gastrointestinal cell, and a skin cell.

36. (New) The method of claim 23, wherein the promoter region comprises SEQ ID
NO:19.

37 (New) The method of claim 36, wherein the promoter region consists of SEQ ID
NO:19.

Applicant : Kornelia Polyak et al.
Serial No. : 10/081,817
Filed : February 22, 2002
Page : 5 of 9

Attorney's Docket No.: 00530-094001 / DFCI 689 /
MGH 1897

38. (New) The method of claim 23, wherein the segment comprises nucleotide 1 to nucleotide 252 of SEQ ID NO:19.

39. (New) The method of claim 23, wherein the segment consists of nucleotide 1 to nucleotide 252 of SEQ ID NO:19.

40. (New) The method of claim 23, wherein the segment comprises nucleotide 229 to nucleotide 551 of SEQ ID NO:19 and nucleotide 1 to nucleotide 12 of SEQ ID NO:3.

41. (New) The method of claim 23, wherein the segment consists of nucleotide 229 to nucleotide 551 of SEQ ID NO:19 and nucleotide 1 to nucleotide 12 of SEQ ID NO:3.

42. (New) The method of claim 23, wherein the segment comprises SEQ ID NO:19 and nucleotide 1 to nucleotide 12 of SEQ ID NO:3.

43. (New) The method of claim 23, wherein the segment consists of SEQ ID NO:19 and nucleotide 1 to nucleotide 12 of SEQ ID NO:3.

44. (New) The method of claim 23, wherein the test cell is a human cell.

45. (New) The method of claim 23, wherein the degree of methylation is determined by sequencing of bisulfite-treated DNA comprising the segment.

46. (New) The method of claim 23, wherein the degree of methylation is determined by a methylation-specific polymerase chain reaction (MCP) assay.

